"Over the Top and Give 'Em Hell;" Bombing Raid Into German Trenches

Sergeant McClintock Tells Of Further Adventures With The Allies In Fighting In The Trenches In France—A First-Hand Account Of Preparations For And The Charge Across "No Man's Land" Into The Trenches Of The Enemy; Of Hand To Hand Battles; Of Men Falling Dead Everywhere; Of How Men's Teeth Chatter In Fear When They Go Into A Fight That May Be Their Last—"The Real Hell Of War."

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EDITORIAL NOTE: Sergeant McClintock is an American boy of Lexington, Ky., who has seen service in France, was decorated for bravery, wounded, invalided home, and is now endeavoring to get a commission in our army. A commission in the Canadian army awaits him if he returns to join his old command. However, he is endeavoring now to join the American forces at the front, and has been promised his honorable discharge from the Canadian army. This is the third article in the series. In his last one, he described the exhaustive preparations for a bomb raid on the enemy trenches and closed it just as they were ordered "over the top."

AS WE climbed out of the shelter of our trenches for my first—and perhaps, my last, I thought—adventure in No Man's Land, the word was passed:

"Over the top and give 'em hell!"

That is the British Tommies' battle cry as they charge the enemy and it has often sounded up and down those long lines in western France as the British, Canadian and Australian soldiers go out to the fight and the death.

Giving 'Em Hell.

We were divided into six parties of ten men, each party having separate duties to perform. We crouched forward, moving slowly in single file, stumbling into shell holes and over dead men—some very long dead—and managing to keep in touch with each other though the machine gun bullets began to drop men almost immediately. Once we were started, we were neither fearful nor rattled. We had been drilled so long and so carefully that each man knew just what he was to do and he kept right on doing it unless he got hit. To me, it seemed the ground was moving back under me. The first ten yards were the toughest. The thing was perfectly organized. Our first party of ten was composed of signallers. They were paying out wires and carrying telephones to be used during the 15 minutes of our stay in the German trenches in communicating with our battalion headquarters.

The Telephone Code.

A telephone code had been arranged, using the names of our commanding officers as symbols. "Rexford 1" means, "First prisoners being sent back"; "Rexford 2" means "Our first wounded being sent over"; "Rexford 3" means, "We have entered German trench." The code was very complete and the signalers had been drilled in it for a week. In case the telephone wires were cut, the signallers were to send messages back by the use of rifle grenades. These are rifle projectiles which carry little metal cylinders to contain written messages, and which burst into flame when they strike the earth, so that they can be easily found at night. The officer in charge of the signalers was to remain at the point of entrance, with his eyes on his watch. It was his duty to sound a warning signal five minutes before the end of our time in the German trenches.

Remove Identification Tags.

The leader of every party of ten also had a whistle with which to repeat the warning blast and then the final blast, when each man was to drop everything and get back of our artillery fire. We were not to leave any dead or wounded in the German trench, on account of the information which the Germans might thus obtain. Before starting on the raid, we had removed all marks from our persons, including even our identification discs. Except for the signalers, each party of ten was similarly organized. First, there were two bayonet men, each with an electric flash light attached to his rifle so as to give light for the direction of a bayonet thrust and controled by a button at the left hand grasp of the rifle. Besides his rifle, all of these men carried six or eight Mills No. 5 hand grenades, weighing from a pound and five ounces to a pound and seven ounces each.

The Lineup.

They are the same shape as a turkey egg and a little larger. Upon withdrawing the firing pin, a lever sets a four second fuse going. One of these grenades will clean out anything living in a ten foot trench section. It will also kill the man who is throwing it, if he holds it more than four seconds, after he has pulled the pin. The third man of each ten was an expert bomb thrower, equipped as lightly as possible to give him freedom of action. He carried a few bombs, himself, but the main supply was carried by the fourth man who was not to throw any unless the third man became a casualty, in which case number four was to take his place. The third man also carried a knob-kerrie—a heavy bludgeon to be used in whacking an enemy over the head.

Ours were made by fastening heavy steel nuts on a stout stick of wood—a very business like contrivance. The fourth man, or bomb carrier, besides having a large supply of Mills grenades, had smoke bombs, to be used in smoking the Germans out of dug outs and, later, if necessary, in covering our retreat, and also fumite bombs. The latter are very dangerous to handle. They contain a mixture of petrol and phosphorous, and weigh three pounds each. On exploding they release a liquid fire which will burn through steel.

Men To Replace Wounded.

The fifth, sixth, seventh and eighth in line, were called utility men. They were to take the places of any of the first four who might become casualties. In addition, they carried two Stokes-gun bombs, each. These weigh nine pounds apiece, have six second fuses, and can be used in wrecking dug outs. The ninth and tenth men were sappers, carrying slabs of gun cotton and several hundred yards of instantaneous fuse. This explosive is used in demolishing machine gun emplacements and mine saps.

The sappers were to lay their charges while we were at work in the trenches, and explode them as soon as our party was far enough out, on the return journey to be safe from this danger. In addition to these parties of ten, these were three of us who carriied bombs and had orders to keep near the three officers, to take the place of any one of them that might go down, and meanwhile to use our own judgment about helping the jolly old party along. I was assigned one of the three.

In addition to the raiding party, proper, there was a relay all across No Man's Land, at ten paces interval, making a human chain to show us our way back, to assist the wounded and, in case of opportunity or necessity, to reenforce us. They were ordered not to leave their positions when we began to come back, until the last man of our party had been accounted for. The final section of our entourage was composed of 12 stretcher bearers, who had been specially trained with us, so that they would be familiar with the trench section which we were to raid.

The Raid And Its Result.

There were two things which made it possible for our raiding party to get started across No Man's Land. One was the mometary quickening of the blood which follows a big and unaccustomed dose of rum and the other was a sort of subconscious, mechanical confidence in our undertaking, whih was a result of the scores of times we had gone through every prearranged movement in our practice duplicate German trenches behind our lines. Without either of those influences, we simply could not have left the shelter and faced what was before us.

An intensified bombardment from our guns began just as soon as we had climbed "over the top" and were lining up for the journey across. "Lining up" is not just a suitable term. We were crawling about on all fours, just far enough out in No Man's Land to be under the edge of the German shell fire, and taking what shelter we could in shell holes while our leaders picked the way to start across. The extra heavy bombardment had warned the Germans that something was about to happen. They sent up star shells and "S. O. S." signals, until there was a glare over the torn earth like that which you see at the grand finish of a Pain's fire works display, and meanwhile they sprayed No Man's Land with streams of machine gun fire. In the face of that, we started.

Teeth Chatter With Fear.

It would be absurd to say that we were not frightened. Thinking men could not help but be afraid. If we were pallid—which undoubtedly we were—the black upon our faces hid it, but our fear struck voices were not disguised. They trembled and our teeth chattered.

We sneaked out, single file, making our way from shell hole to shell hole, nearly all the time on all fours, crawling quickly over the flat places between this small shelter. The Germans had not sighted us but they were squirting machine gun bullets all over the place promiscuously, like a man watering a lawn with a garden hose, and they were bound to get some of us. Behind me, I heard cries of pain and groans, but it made little impression on my benumbed intelligence, from the mere fact that whatever had happened had happened to one of the other sections of ten and not to my own. It seemed, some way or another, no affair to concern me.

Comrade Is Shot Down.

Then a man in front of me doubled up suddenly and rolled into a shell hole. That simply made me remember very clearly that I was not to stop on account of it. It was some one else's business to pick that man up. Next, according to the queer psychology of battle, I began to lose my sensation of fear and nervousness. After I saw a second man go down, I gave my attention principally to a consideration of the irregularities of the German parapet ahead of us, picking out the spot where we were to enter the trench. It seems silly to say it, but I seemed to get some sort of satisfaction out of the realization that we had lost the percentage which we might be expected to lose, going over. Now, it seemed the rest of us were safe until we should reach the next phase of our undertaking. I heard directions given and I gave some myself. My voice was firm; it surprised me, and I felt almost calm.

Barbed Wire Torn Up.

Our artillery had so torn up the German barbed wire that it gave us no trouble at all. We walked through it with only a few scratches. When we reached the low, sand bag parapet of the enemy trench, we tossed in a few bombs and followed them right over as soon as they had exploded. There wasn't a German in sight. They were all in their dugouts. But we knew pretty well where every dugout was located, and we rushed for the entrances, with our bombs. Everything seemed to be going just as we had expected it to go. Two Germans ran plump into me as I was rounding a ditch angle, with a bomb in my hand. They had their hands up and each of them yelled:

"Mercy, Kamarad!"

I passed them back to be sent to the rear, and the man who received them from me chuckled and told them to move lively.

German Trenches Not Strange.

The German trenches were practically just as we had expected to find them, according to our sample. They were so nearly similar to the duplicate section in which we had practiced that we had no trouble finding our way in them. I was just thinking that really the only tough part of the job, remaining, would be getting back across No Man's Land, when it seemed that the whole earth, behind me, rose in the air. For a moment I was stunned, and half blinded by dirt blown into my face. When I was able to see, I discovered that all which lay behind me was a mass of upturned earth and rock, with here and there a man shaking himself or scrambling out of it or lying still.

Just two minutes after we went into their trench, the Germans had exploded a mine under their parapet. I have always believed that in some way or another they had learned what spot we were to raid, and had prepared for us. Whether that's true or not, one thing is certain. That mine blew our organization, as we would say in Kentucky, "plumb to hell." And it killed or disabled more than half of our party.

Great Confusion.

There was much confusion among those of us who remained on our feet. Some one gave an order to retire and some one countermanded it. More Germans came out of their dugouts, but instead of surrendering as per our original schedule, they threw bombs amongst us. It became apparent that we would be killed or captured if we stuck there and that we wouldn't get any more prisoners. I looked at my wrist watch and saw that there remained but five minutes more of the time which had been allotted for our stay in the trench, so I blew my whistle and started back.

I had seen private Green (No. 177,-256) knocked down by a bomb in the next section, and I picked him up and carried him out over the wrecked parapet. I took shelter with him in the first shell hole, but I found that he was dead and left him there. A few yards further back toward our line I found lance corporal Glass, in a shell hole, with part of his hip shot away. He said he thought he could get back if I helped him, and I started with him. Private Hunter, who had been in a neighboring shell hole, came to our assistance, and, between us, Hunter and I got Glass to our front trench.

Unable to Recognize Dead.

We found them lining up the survivors of our party for a roll call. That showed so many missing that Maj. Lewis, formerly of the Montreal Star, called for volunteers to go out in No Man's Land and try to find some of our men. Corporal Charleson, private Saunders and I went out. We brought in two wounded, and we saw a number of dead, but, on account of their blackened faces, were unable to recognize them. The scouts, later, brought in several bodies.

Of the 60 odd men who had started in our party, 42 were found to be casualties—killed, wounded or missing. The missing list was the longest. The names of those men were marked "m. i. a." (missing, believed killed) on our rolls. I have learned since that some few of them have been reported through Switzerland as prisoners of war in Germany, but most of them are now officially listed as dead.

Memory Prevents Sleep.

All of the survivors of the raiding party were sent 20 miles to the rear at 7 o'clock, and the non commissioned officers were ordered to make reports in writing concerning the entire operation. We recorded, each in his own way, the ghastly failure of our first aggressive effort against the Germans, before we rolled into the hay in the same old barn where we had been quartered during the days of preparation for the raid. I was so dead tired that I soon felt asleep, but not for long. I never slept more than an hour at a time for several days and nights. I would doze off from sheer exhaustion, and then suddenly find myself sitting straight up, scared half to death, all over again.

There may be soldiers who don't get scared when they know they are in danger or even when people are being killed right around them, but I'm not one of them. And I've never met any of them yet. I know a boy who won the military cross, in the battle of the Somme, and I saw him on his knees before his platoon commander, shamelessly crying he was a coward and begging to be left behind, just when the order to advance was given.

Bombing IS Important.

Soldiers of our army who read this story will probably observe one thing in particular, and that is the importance of bombing operations in the present style of warfare. You might say that a feature of this war has been the renaissance of the bombardier. Only British reverence for tradition has kept the name of the Bombardiers alive, through a considerable number of wars. Now, in every offensive, big or small, the man who has been trained to throw a bomb thirty yards is busier and more important than the fellow with the modern rifle which will shoot a mile and a half and make a hole through a house.

In a good many surprising ways this war has carried us back to first principles. I remember a Crusader's mace which I once saw in the British museum that would make a bang-up knob-kerrie, much better than the kind with which they arm our number 4 men in a raiding party section. It had a round, iron head with spikes all over it. I wonder that they have not started a factory to turn them out.

Tricks fo Bombing.

In the revivial of bombing some tricks have developed which would be humorous if the denouements were not festooned with crepe and "d. d." notations on muster rolls. There may be something which might be termed funny on one end of a bombing ruse—but not on both ends of it. Whenever you fool a man with a bomb, you're playing a practical joke on him that he'll never forget. Even, probably, he'll never get a chance to remember it.

"When the Canadians first introducer bombing, the bombs were improvised of mess tins, the fuses were cut according to the taste and judgment of the individual bomber, and, just when the bomb would explode was more or less problematical. Frequently, the Germans have tossed our bombs back into our trenches before they went off. That was dangerous and irritating. They can't do that with a Mills grenade or any of the improved factory made bombs, because the men know just how they are timed and are trained to know just how to throw them.

A German Bomb Trick.

Then the Germans used to work a little bomb trick of their own. They learned that our scouts and raiders were all anxious to get a German helmet as a souvenir. They'd put helmets on the ground in No Man's land or in an advanced trench with bombs under them. In several cases, men looking for souvenirs suddenly became memories themselves. In several raids, when bombing was new the Canadians worked a trick on the Germans with extensively fatal effect. They tossed bombs into the German trenches with six inch fuses attached.

To the Germans they looked just like the other bombs we had been using, and, in fact they were—all but the fuses. Instead of having failed to continue burning, as the Germans thought, those fuses had never been lighted. They were instantaneous fuses. The ignition spark will travel through instantaneous fuse at the rate of about thirty yards a second. A German would pick up one of these bombs, select the spot where he intended to blow up a few of us with our own ammonal, and then light the fuse. After that there had to be a new man in his place. The bomb would explode instantly the long fuse was ignited.

The next day when I got up after this disastrous raid, I said to my bunkie:

Everybody Smokes Cigarets.

"Got a fag?" (Fag is the Tommy's name for a cigaret.)

It's never, "will you have a rag?" but always, "have you got a fag?"

They are the inseparable companions of the men at the front, and you'll see the soldiers go over the top with an unlit fag in their lips. Frequently it is still there when the work is done. So keep our American boys well supplied with fags.

As we sat smoking, my friend said: "Something sure raised hell with our calculations."

"Like those automatic self cocking revolvers did with a Kentucky wedding when some one made a remark reflecting on the bride," I replied.—(Copyright, 1917, by The Bell Syndicate, Inc.)

The fourth article of this remarkable personal narrative will appear next week in the Week-End edition. It will tell of being shifted to the Somme.

Sergeant McClintock takes part in the greatest of all battles and tells of the hell of it. "The front in Belgium was really a rest sector in comparison with it," he says. He tells of the extensive preparation of the allies for open warfare afterward abandoned because of the failure of expected developments.

All American Housewives Keep Pantries Filled With Explosives

—BY—
Rene Bache

Ordinary Sack of Wheat Flour Would Blow Up a Building; Rice and Spice Are Deadly Explosives and Even Soap Powder Has Destructive Qualities.

WASHINGTON, D. C., June 20.—Every schoolboy knows that it was the Chinese who invented gunpowder. Presumably its discovery was an accident. A chance mixture of charcoal and saltpeter made an explosion, and there it was.

From the Chinese point of view, the invention had no other usefulness than that it made a big noise. It was valuable, therefore, for purposes of celebration. Also it might be reckoned upon to scare off devils, which are remarkably numerous in China. For both purposes the Chinese use it today.

It was the Chinese who invented the firecracker—nobody knows how long ago. They originated most of the fireworks that are displayed by patriotic Americans on the Fourth of July. It was they who invented the rocket, the roman candle, and the pinwheel. As for the aerial bomb, fired from a mortar, there is uncertainty of the source of the idea.

If the Chinese were first to think of using explosives in war (which cannot easily be proved), it must have been because they imagined that the noise would frighten the enemy. So far as known, it was the Saracens (Turks) who first employed them for actual fighting purposes.

Explosive From Wheat Flour.

But, all things considered, the oddest point about explosives is the simplicity and innocence of the materials from which they are made. Indeed, wheat flour (as has been proved by experiment) makes excellent gunpowder, when substituted for one of the ordinary ingredients of the latter, and, when treated with nitric acid, such flour is converted into a high explosive many times as powerful as gunpowder.

Wheat flour, just as the housewife buys it, is a very formidable explosive, if mixed with air. Let her throw the contents of a bag of it about her kitchen until the air is laden with it, and, by merely lighting a match, she can blow up the house. It is estimated that a 25-pound sack of flour mixed with the air of a good sized room will, if ignited, generate force enough to throw one ton of iron 45 five miles.

Burns Like Gun Powder.

Flour, if so mixed with air as to be supplied with plenty of oxygen, will burn like so much gunpowder. The burning signifies its conversion into gas, the expansion of which in a confined space produces an explosion. Not very long ago a group of huge flour mills in Minneapolis was literally wiped out by an accident of the kind. Walls of solid masonry six feet thick were razed, and great sheets of corrugated iron roofing were thrown to a distance of two miles.

The every day housewife does not realize that she has stored in her pantry enough explosives to destroy a whole block of houses. Take the powdered sugar, for instance. In the suwar bowl it is the most harmless substance imaginable, but set a quantity of it afloat in the air and it becomes exceedingly dangerous. Some years ago a candy factory in Boston was blown to fliners by an explosion of powdered sugar in the marshmallow room.

Any ignitable substance in a finely divided state, if suspended in quantity in the air, is liable to explode. A spark may set it off. Thus sawdust under such conditions, if set on fire, will burn with explosive force. Every now and then a sawmill or a wood pulp factory is blown up in this way.

A cake of soap will not explode under any circumstances. The bathtub need suggest no danger on this account, nor the shaving mug to the man who uses a razor. But soap powder is different. It is a very violent explosive—quite as much so as gunpowder—if mixed in quantity with air. Soap is fat, and therefore combustible. A while ago there was a frightful explosion of soap powder in a Providence factory.

Oxygen Causes Burning.

It is oxygen that supports burning. If the thing that burns (such as flour or soap powder) be brought into contact with the oxygen of the air in such intimate fashion as by the distribution of minute particles through the atmosphere of a room, the substance when ignited will undergo an instantaneous combustion. All at once it is transformed into gas, the expansion of which demolishes all obstacles.

Ordinary dust would explode in the same way if it were composed of ignitible material. But, fortunately, such dust consists mainly of mineral matter, and will not burn. On the other hand, coal dust, being combustible, is a very dangerous explosive. Many of the most dreadful disasters in mines have been attributable to the ignition of coal dust—doubtless in most cases incidental to blasting operations.

What could be more innocent than coal burning in an open grate? But take a grate full of coal, pulverize it, and mix it with plenty of air; it will then explode like gunpowder if ignited. There is power enough in that grate full of coal powder to hurl a 1000-pound shell from a 12-inch gun through three feet of solid steel.

Explosion is simply instantaneous burning in a confined space. Gunpowder in the open air will not explode; it merely burns rapidly. The same idea applies to wheat flour, soap powder, powdered sugar, or any other combustible material in a finely divided state. All the flour in the world could not be made to explode out of doors.

Rice and Spice Explode.

But indoors it is different. Maize dust is very explosive. Most people will remember the disaster that befel the great corn products mills at Granite City, Ill., a few years ago. Only too frequent are explosions of starch mills, of rice in rice mills, and of spice in spice mills. Ignition of vegetable dust does the mischief every time. A very serious affair was an explosion of oatmeal, at the Oliver mill in Chicago. Cork dust in linoleum factories has exploded with disastrous results so often that nowadays no lights are permitted in such establishments.

Ordinary gunpowder is a mixture of saltpeter (nitrate of potash, charcoal and sulphur. The sulphur is merely to furnish ignition—the same purpose that it serves on the head of a sulphur match. The charcoal is the stuff that burns. The saltpeter contains the oxygen requisite to support the burning. All three are reduced to small particles and mixed together. When the sulphur is ignited, the heat causes the saltpeter to give up its oxygen to the particles of charcoal with which it is intimately mingled. The charcoal is converted instantly into hot gas, which expands—with a resulting explosion, if the space be confined.

The old fashioned black gunpowder, to which this description applies, is now regarded as a back number because only 43 percent of it is converted into gas when it burns. It is 57 percent inefficient. Smokeless powder, on the other hand, is 100 percent efficient; in the process of burning it resolves itself wholly into gas.

Various processes are used in the manufacture of smokeless powder. Ours—the kind employed by our army and navy—is made by saturating that innocent substance cotton with nitric acid, and then soaking the product in ether and alcohol. On drying, the material assumes a horny appearance. It is nothing more nor less than an explosive celluloid.

Smokeless Powder Burns Slowly.

A peculiarity of smokeless powder is that it burns slowly. One may safely hold a string of "cordite"—a French variety of the stuff—in the hand, and light one end of it. It will burn in a leisurely way, with a bright flame. On account of its slowness of burning, guns nowadays are made much longer than formerly, in order that the gas may have time to develop fully before the projectile leaves the muzzle.

What can be more innocent than the air we breathe? And yet it is from the atmosphere that the Germans, and our European allies also, obtain the most important ingredient of their high explosives—nitric acid. Teh air is four-fifths nitrogen and one-fifth oxygen, mixed together as one might mix water and alcohol. When the two are combined chemically, they make nitric acid. This is accomplished by electrical means, a description of which is not here appropriate.

Nitric acid is indispensable in the manufacture of all kinds of high explosives. Thus, for example, the high explosive used by our army and navy, called "dunnite," is made by treating carbolic acid with nitric acid. By the same process are produced the British "lyddite," the French "melinite," and the Japanese "shimose."

A familiar type of high explosive is guncotton, which is made by soaking ordinary cotton in a mixture of nitric acid and sulphuric acid. Common glycerine—a harmless, sweet, colorless liquid—when mixed with nitric acid becomes the frightful explosive known as nitro-glycerine.

Demolishes Everything.

A high explosive is a very different thing from an ordinary explosive like gunpowder. The latter is a mechanical mixture in which the fire produced by ignition is communicated with relative slowness from grain to grain. But in a high explosive each molecule contains both the thing that burns and the exygen that supports the burning. Accordingly, when it is "set off," there is no delay; the whole mass is instantly converted into gas. Even the surrounding air has no time to get out of the way, and everything in the immediate neighborhood is demolished.

But the high explosive is not necessarily a sensitive explosive. On the contrary, the "T. N. T." and other compounds employed for loading the big gun shells in the present war are of the "reluctant" kind: they do not go off easily. It is for this very reason that they can be safely used for the bursting charges of projectiles—being provided with fuses to release their destructive energies when they have reached the target. To handle (as has often been said), they are no more dangerous than so much cornmeal.

The incendiary bombs that do such dreadful work usually contain a mixture of oxide of iron and powdered aluminum that is not properly speaking an explosive. It is not meant, indeed, for that purpose. The mixture in question, when ignited by a fuse, makes a liquid fire that nothing will quench. Shells containing it are among the most frightful of the instruments of destruction used in the present war.

Cotton and Grain From the Southwest Make Galveston Great Port For Allies

—BY—
Frank G. Carpenter
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Texas City Which Lifted Itself Up Out of Sands After Great Disaster, is Chief Cotton Export Point and Grain Chute of Southwest.

GALVESTON, Texas, June 20.—Away down here on the Gulf of Mexico, several hundred miles west of the mouth of the Mississippi and in about the same latitude as Cairo, in Egypt, lies a little island which has become of great importance on account of the war. The island is a spit of sand three miles wide and a little more than 30 miles long. You could walk across it in an hour and from one end to the other in a day. It lies close to the shore, and in one place so near it that a causeway, over which the trains go in three minutes, connects it with the mainland of Texas. The island lies at the mouth of a great bay almost half as large as the state of Rhode Island. It guards the entrance and thereby furnishes a harbor from which will go out vast quantities of goods to our allies in Europe.

Chief Cotton Export Point.

This island is Galveston Island, and the harbor is the chief export point for the vast shipments of cotton, which will be sent abroad to feed the textile factories of England and France and to supply the munition plants of those countries. The modern soldier is largely clad in cotton; and it takes, it is said, one whole bale of 500 pounds, turned into explosives, to fire a big gun.

Last year Galveston shipped between 2,000,000 and 3,000,000 bales of cotton, and more than half of that went to England. Notwithstanding the submarines the staple has gone forth in a steady and unbroken stream. Vessel after vessel, each carrying from 5000 to 10,000 bales, has crossed the Gulf of Mexico and made its way over the Atlantic to its port of destination. The value of such cotton sent abroad in last year amounted all told to over $182,000,000, and of that more than $40,000,000 worth has gone to Italy and France.

War Interferes.

Just now the business of the port is somewhat restricted on account of the war, but when the reason is on there will be 20 arrivals and departures of steamers a day. The wharves will be covered with cotton bales and hundreds of men will be packing them so tight into the holds of the steamers that upon starting out each will be a solid mass of cotton.

The cotton comes to Galveston on a half dozen trunk lines, which meet at the causeway. It crosses from there to some of the largest cotton warehouses of the world—warehouses which cover a ground space of 20 or 30 acres and which during most of the year are piled high with cotton. These warehouses are known as cotton presses. They can store upward of 100,000 bales at a time and a white stream of these fibers moves in and out of them all the year round.

The most of these bales come from the cotton fields of Texas, which produce more of this staple than any other state of the union. The cotton has been gathered on the farms, run through the gins and packed up in great bales which are pressed on the plantations. After it reaches Galveston the bales are again pressed in the warehouses. They go through high-density machines which squeeze the white lint together into slabs as hard as iron two feet square and five feet in length. They are now about half as large as when they came in, and will take that much less room in the steamers. They are taken down to the wharves by rail, or on motor trucks and mule drays, and in some cases upon long pulley conveyors by means of which one mule can haul a large number of bales.

$50 a Week for Loading.

The loading of the steamers is done by skilled men, negroes who receive as much as $50 a week during the season. They use great screws to squeeze the bales into place and the packing is so carefully done that a single large vessel may carry as much as 20,000 bales. That means 10,000,000 pounds of cotton, or enough to make a cotton shirt for every soldier now fighting our battles in Europe and leave some to spare. I know this is not an overestimate, for I have just weighed one of my own cotton shirts to find out. The scales kicked the beam at eight ounces.

Grain Chute of Southwest.

Galveston is not only the chief cotton port of the world, but it is also the grain chute of the southwest. We do not look upon this part of the United States as a grain raising center, but it is fast becoming so and with diversified farming it is bound to be more and more one of the biggest bread baskets of the North American continent. Texas alone is now raising 20,000,000 bushels of wheat every year, and last year something like 60,000,000 bushels were shipped out of Galveston. The grain comes in also from Kansas, Nebraska, Oklahoma and states farther west, and it goes out across the Gulf of Mexico and up through the Atlantic to Europe. Of the shipments last year more than half went to England and about one-sixth to Italy and France. During the coming season such exports will be rushed and a large part of our foreign food supply will be sent out from here. Last year Galveston had a seagoing trade worth more than a quarter of a billion dollars and the bulk went to our allies.

Texas Has Three Important Ports.

In addition to wheat and cotton the bay of Galveston is fast becoming an export point for lumber and iron. On other sides of the bay are the two ports of Texas City and Bolivar. Texas City is six miles from Galveston, on the mainland of Texas, and Bolivar, on the opposite side of the bay, is about four miles from Galveston. Bolivar is now shipping quantities of lumber, and many of the wooden ships that will be built to carry the overseas trade will get their lumber from here. It is also the port for the shipment of the iron ore of this region and it has the latest arrangement for handling such cargo.

All of these three ports, as well as Houston, are in a certain sense tributary to Galveston bay. Houston, although it is 50 miles inland, has a ship canal which it proposes to widen and deepen so that the largest of the ocean steamers can eventually make their way to its wharves.

It will thus be seen that we have four important shipping centers which meet at the channel which forms the entrance to Galveston bay. They lie at the mouth of the great agricultural funnel of the southwestern states, forming the key to the exports of this part of our country.

From this it will be seen how important it is that this waterway be kept open and its facilities increased in this time of war. The government has already spent something like $28,000,000 on Galveston and its approaches and at the last session of congress $5,000,000 was appropriated to extend the sea wall and make other improvements. Additional land is to be reclaimed from the sea and the government will soon have 1000 acres on each side of the channel near the entrance to Galveston harbor, with ample room for fortifications and other establishments along the lines of preparedness.

The plans of the future include the deepening of the channel to 35 feet, and also fuel oil supply tanks built so far inland that vessels of the enemy, should they ever enter the gulf, could not reach them with their big guns.

The harbor is well fortified now. There are three forts protecting its entrance and their big guns command the water far out at sea. It would not be wise to mention the armament, but it includes the most effective of coast defense weapons and the harbor is probably well protected by mines.

Port An Interesting One.

During my stay I have gone about the harbor on one of the government vessels and have visited a large part of the bay. I have also passed through the jetties out to the gulf. The port is one of the most interesting in the United States. It had its beginning in the building of the jetties at the mouth of the Mississippi by Capt. James B. Eads many years ago. At the mouth of Galveston bay were large sand bars, but the entrance was so narrow that these were affected by the tides as they moved in and out, and it was thought that if the channel could be narrowed they could make the force of the tides gouge out the bars and make a deep opening into the bay. This, you know, is the principle on which the Mississippi is kept open, the waters of the river running with great force through a narrow channel and carrying the silt out into the gulf.

Capt. Eads came to Galveston with a view to taking the contract to make a deep water port, on the basis of no water, no pay. He examined the channel and offered to bring about this result for the sum of $7,500,000. For this sum he was to make a channel 30 feet deep, and it was to be based upon the same conditions as those which prevailed at the mouth of the Mississippi. This matter was brought before congress, but the bill failed and it was not until some years later that it was taken up and the jetties made.

Since then the channel has been deepened and the jetties improved, until now two great arms of granite blocks reach in from the gulf, protecting the harbor and forming a pipe, as it were, through which the 300,000 acres of water in Galveston bay move in and out from the Gulf of Mexico at the times of the tides. The water goes with such force that it scours clean the channel and keeps it of an even depth. One arm of these jetties is seven miles long and the other is five miles. The width of the channel at the mouth is about one mile and a half and the walls of granite thoroughly protect the entrance.

Are Walls of Granite.

The jetties of Galveston are walls made of great chunks or blocks of granite dumped down one on top of the other until they have formed huge rock embankments, which hold back the water. Many of the blocks weight 10 or 12 tons each. There are thousands of these rocks for the jetties are 20 to 30 feet wide at the top. Nevertheless at the time of the great storm in 1900 many of these mighty blocks were lifted up by the sea and moved for some distance.

Sailing in through the jetties, you enter the channel that leads to Galveston harbor. It is just about an hour from the deep water of the Gulf of Mexico to the wharves. You leave the jetties and pass the quarantine station, which is on a little island at the side of the channel, and then go on to the port, which is formed by Galveston on the one side and Pelican island, just opposite. Pelican island belongs to the city and will eventually be developed as a part of the port. It has a water front almost equal to that of Galveston proper. Between it and the Galveston docks there is a channel 1400 feet wide where the water is as quiet as a mill pond.

On the Galveston side of the channel is a continuous line of concrete warehouses, elevators and wharves several miles long, with slips or great arms of water running back into the land. The warehouses face the slips, and they enable three large steamers to anchor on each side, and in addition, in the space at the front. As it is, 30 large vessels can be handled at the wharves of Galveston at the same time. The whole water front, including the ships, has a length of more than five miles.

Galveston's Famous Seawall.

The famous seawall, which now covers the entire frontage of the city facing the gulf is to be extended out to the jetties. It will go as far as Fort Jacinto and will then be five or six miles in length. The work will be began within a few months and pushed to a speedy completion.

During my stay here I have been stopping at the Hotel Galveston, facing this wall. I have walked miles back and forth over it and have motored along the wide brick boulevard which has been built just behind it. I have also taken an automobile and speeded for miles along the beach at low tide. Galveston is the chief bathing resort of the southwest and the beach is one of the finest in the United States. It is frequently the scene of automobile races. When the tide is out you have a stretch of 20 miles of solid white sand, the machines go flying along in full sight of the ocean. The slope of the beach is so gradual that you can wade far out from the shore. The bathing season begins early and lasts until late in the fall.

Just back of this beach, protecting Galveston from the sea is the seawall which forms the promenade of the people. It is somewhat like the Boardwalk at Atlantic City. The walk here, however, is upon the concrete top of the wall or the wide road paved with brick and lined with beautiful lawns, which runs just behind it. The place is ideal as a summer resort and hundreds of thousands come here during the season to enjoy the air and the bathing.

Mass of Reinforced Concrete.

The seawall is one of the wonders of municipal creation. Mechanically it is a mass of solid concrete reinforced with steel rods embedded in a foundation of cypress piles, which have been driven down 50 feet into the clay under the ocean. The wall rises from this foundation to a height of 17 feet above the waves at low tide, and it curves inward, so that it throws back the waves in a great curtain like spray as they dash against it in times of storm. In front of this wall is an apron of huge granite blocks which break the waves as they come in, robbing the ordinary high tide of its force.

The wall is 17 feet wide at the base and it contains so much material that if it could be loaded into box cars the train required to haul it would be as long as the distance between Philadelphia and Baltimore. The workmanship is such that the whole wall looks like a mass of solid white stone, firm enough to outlast the ages.

The seawall was but little injured by the storm of 1915, which tore out the ends of the causeway connecting Galveston island with the mainland. The causeway itself cost more than $2,000,000 and it will take another million and a half to make it so that it will be absolutely safe against the storms of the future. Today the breaks have been repaired by piles forming a trestle which connects the mainland and the remaining sections of concrete; and the trains cross to the island upon this track which is half wood and half stone. The hurricane of two years ago left a track like that of an earthquake. Great sections of stone balustrades lie half drowned in the sea and some of the remains remind me of the ruins of Baalbeck.

When Destruction Swept Over City.

The building of the great wall and the causeway was accompanied by the raising of the city of Galveston. You remember the story of the storm of September, 1900. Before that Galveston was the richest city of the southwest, and it was a common saying that you could not start a peanut stand anywhere in Texas without consulting the capitalists of Galveston. The town had 20,000 or 40,000 people and millionaires were thicker than the bales of cotton now on the wharves. The place was noted for its beautiful homes and fine business section.

Then out of the Caribbean sea, some wh ere in the vicinity of Martinique island, sprang up a cloud no bigger than the hand of a man, and with it a hurricane which crossed over the American Mediterranean, as that sea is called, and entered the Gulf of Mexico. It gathered speed as it flew, and it was hurled upon Galveston while traveling at the rate of 120 miles an hour. As it neared the island it plunged into the sea, and rolled up the waters of the gulf, making a great tidal wave that flooded the city, drowned one fourth or more of its inhabitants and ground some of its homes to pebbles and matchwood. It absolutely destroyed more than 4000 buildings and from 3000 to 10,000 people. Twenty million dollars' worth of property was wiped out by the wind and the flood and the people so frightened that about 10,000 of those remaining left the island for good.

City Is Restored and Made Higher.

Then came one of the wonders of civic spirit and municipal creation which have been associated with Galveston from that time to this. The population left came together and decided not only to rebuild the drowned city but to raise it up so high that it would be out of danger from similar attacks in the future. They hired the best civil engineers of the country to advise them and give them the plans. They bonded themselves for more than $2,000,000 and later got congress to help them. They put a great canal through the island and brought in sand from the sea. They raised the houses upon stilts and put new foundations beneath them. The whole town was raised. It lifted itself up by its boot straps, as it were, to from six to 15 feet above the old level, and filled in the space below, so that today you could not tell that it is not built upon virgin soil.

At the same time the great wall was constructed to keep out the ocean. New wharves and docks were erected and today Galveston is bigger, stronger, better and more beautiful than ever before. It is a city of wide streets, with long lines of palms running through them and cement driveways on each side. It has magnificent homes, an up to date business section and public buildings and schoolhouses which would be a credit to any nothern city of three times its size.

The Daily Novelette

A TON TO THE SQUARE INCH.

(Great Discovery Series.)

One day, a thousand years before the beginning of the stone age, it was spring in the country of Pug-noses, or Granite-eaters. (See Leonardo Sottile's "Before History Began, and Before That.")

ARBUTUS, the earliest of the early poets, stood in the shade of a fragrant scrapple tree, making his vows to Clingaline, a proud and haughty beauty. A fine figure he made, seven feet in height and with all his muscles rippling, but the maid, pouting pettishly, bade him beat it. (See Friday Snow's "Slang Abdy.")

"But, daughter of the stars," he besought distractedly, "can you not understand that I am laying at your tiny feet, scarce 15 inches in length, all my fortune of, 50 long-tailed goats, 80 zendillicus skins and my nut of solid ivory. Does it not percolate into your beautious bean that I am offering you a life of unceasing devotion?"

"It percolates, all right, old top, and I'm very grateful and all that, I suppose," replied Clingaline. "And yet—and yet—I don't know—somehow or other—I can't exactly explain—"

But at that moment Arbutus lost all control of himself. Driven by an inexplicible impulse, he seized Clingaline in his giant arms and squeezed her so mightily that to the girl's swooning senses the earth and the sun seemed to clash. Then, frightened and trembling, he released her.

"Arbutus!" she cried, as soon as she got her breath. "Oh, you!"

And she threw herself into his surprised but willing arms.

For she had been the party of the second part in the world's first hug.

An average of 2000 persons a month are making gifts of gold coins or jewelry to the Italian treasury department.

A woman, Dr. Schischkina Tavein, will sit in the council of 61 which is now preparing Russia's national constitution.